Graphical Programs Used For The Monitoring Of Environmental Satellite Products With The NOAA Products Validation System (NPROVS)

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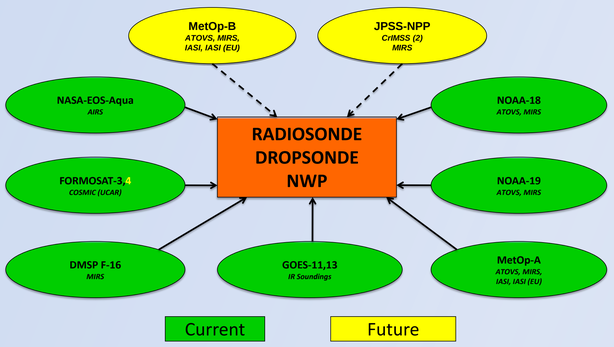
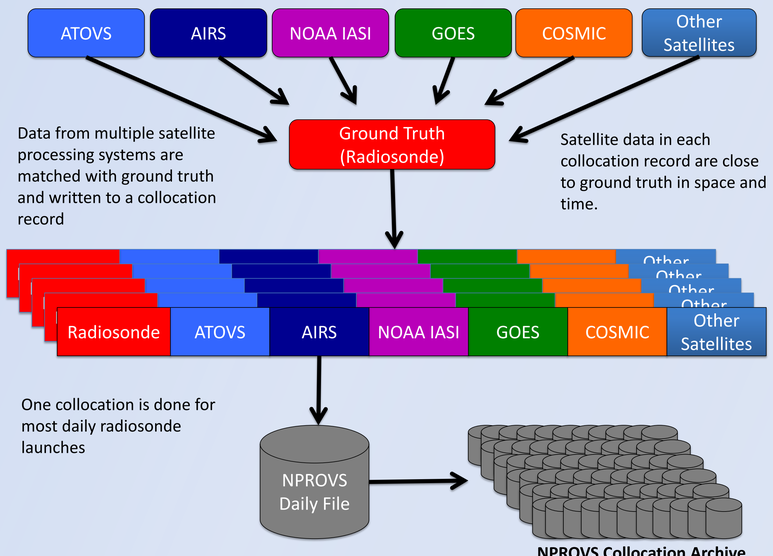
NPROVS Introduction

The NOAA Products Validation System (NPROVS) was designed within the NOAA/NESDIS Office of Satellite Applications and Research (STAR) to evaluate and monitor the performance of multiple satellite systems.



Selected sounding footprints from each available satellite are collocated with ground truth data, currently radiosonde data, by locating a satellite footprint that is closest to the ground truth in space and time. Once collocated, the satellite data can be compared to the ground truth and to other satellite systems.

The collocated data can be accessed by anyone interested in studying the performance of the satellite systems. In addition, a set of graphical programs was created to provide users with the ability to view and analyze the collocated data.



STAR/OPDB Web Site

http://www.star.nesdis.noaa.gov/smcd/opdb/poes

ProfileDisplay and NARCS can be run directly from the web site by clicking on the appropriate links

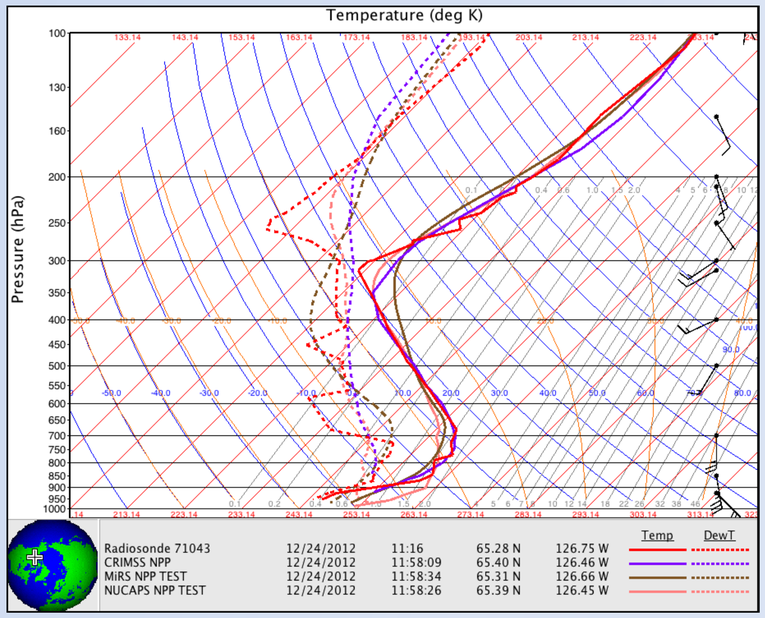
NPROVS archive data are available for downloading

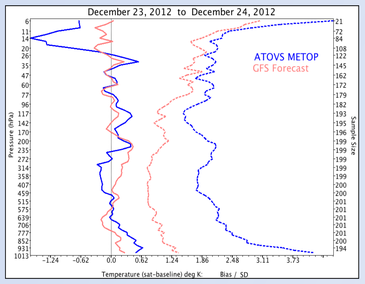
Monthly and long-term summary plots of data from NPROVS are available (April 2008 to present)

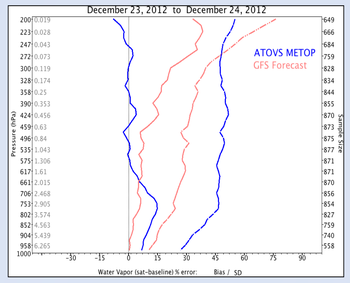
Questions about NPROVS and specific requests for data access can be directed to **Tony.Reale@noaa.gov**

ProfileDisplay (PDISP)

Displays temperature and moisture profiles for individual collocations of radiosonde and selected satellite profiles. The program also displays various ancillary and raw data for the radiosonde and each collocated satellite.

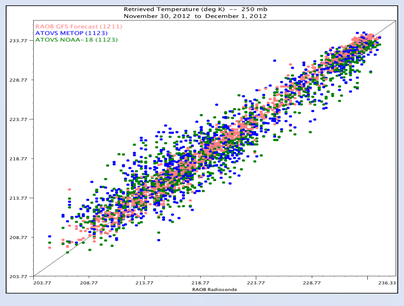


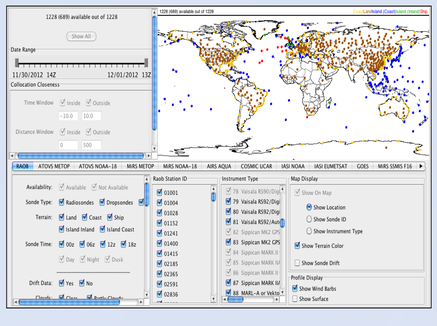




Vertical accuracy statistics can be generated to compare satellite profiles against the ground truth. Bias, standard deviation, RMS and R-squared statistics are computed for both temperature and moisture for a common set of satellite/sonde collocations.

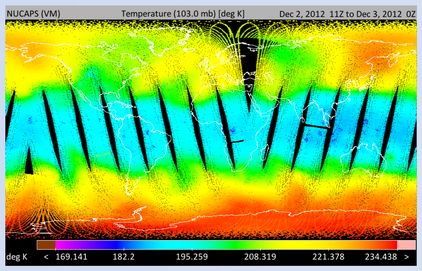
Scatter plot diagrams can be generated for any set of collocated satellite and sonde profile data. Scatter plots are available for temperature and moisture at all pressure levels. Specific collocation(s) on the plot can be selected and then immediately viewed providing a powerful troubleshooting tool.





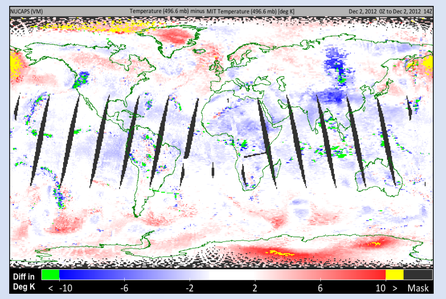
Sub-selection capabilities provide an analytical interface for comparison and statistics generation for user-defined subsets of radiosonde and satellite collocations. These include space and time windows, sonde instrument types, balloon drift, quality settings and more.

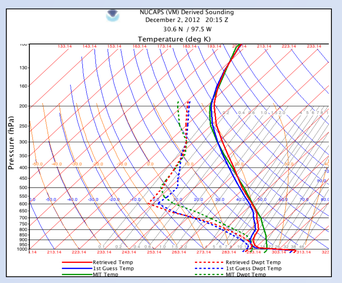
Orbital Display System (ODS)

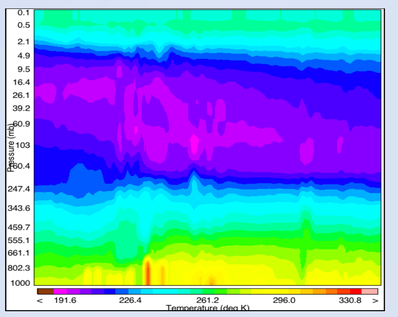


Graphically displays available parameters from one or more satellite systems collocated in NPROVS. Includes user prompts for customized display of the data including projections, smoothing, zooming and contours.

Two parameters from the same satellite (or different satellites) can be compared by using the built-in math functions to subtract one image from another. The resulting image shows areas of agreement (white) and disagreement (red and blue).



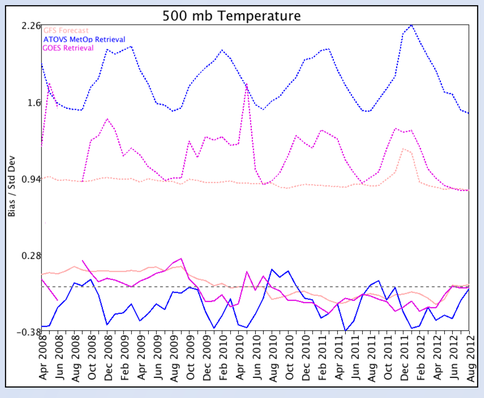




Any sounding footprint can be selected to view temperature and moisture profiles from the sounding. Vertical atmospheric cross-sections of temperature and moisture data can be generated between any two locations.

NPROVS Archive Summary (NARCS)

Provides long-term trends of satellite-minus-radiosonde statistics for selected satellites based on user selectetd settings, including:



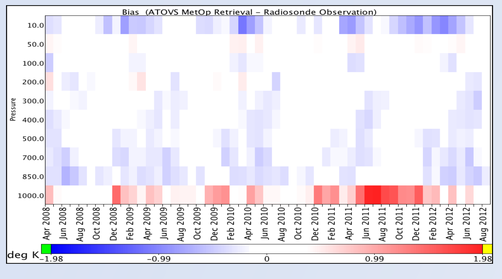
Daily, weekly and monthly statistics

Temperature and moisture at multiple pre-defined pressure levels

Bias, standard deviation, RMS, R-squared and sample size

Cloudiness, terrain and satellite quality flags.

Long-term satellite performance at all pre-defined pressure levels can be displayed. Red/blue blocks show a mean warm/cold bias versus ground truth for a given month at each pressure level.



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